ISSN (print) 0093-4666 © 2015. Mycotaxon, Ltd. ISSN (online) 2154-8889

MYCOTAXON

http://dx.doi.org/10.5248/130.1045

Volume 130, pp. 1045–1049 *October–December 2015*

A new species and a new combination in *Codinaea* from Brazil

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Abstract — *Codinaea aquatica* sp. nov., a hyphomycete collected on submerged decaying branches of an unidentified plant, is described and illustrated. It is distinguished by monophialidic and polyphialidic conidiogenous cells that produce fusiform to navicular unicellular hyaline conidia with a single unbranched setula at each end, basal setula strongly curved, apical setula straight or flexuous. *Codinaea tropicalis* is proposed as a comb. nov. based on *Dictyochaeta tropicalis*.

Key words — freshwater, asexual fungi, systematics

Introduction

Codinaea introduced by Maire (1937) with *C. aristata* Maire as the type species is characterized by distinct, single, mononematous or synnematous, brown to pale brown conidiophores, and an acerose to subulate, septate, dark brown, thick-walled seta that may occur in some species. The conidiogenous cells are mono- or polyphialidic, terminal, determinate, or with a few sympodial extensions and sometimes with enteroblastic percurrent regenerations and with distinct cylindrical or funnel-shaped flaring, sometimes collapsed collarettes at the conidiogenous loci and producing unicellular or septate, falcate to lunate hyaline conidia with a filiform appendage at each end (Almeida & Gusmão 2014,

Granados et al. 2014, Hughes & Kendrick 1968, Li et al. 2012, Réblová & Winka 2000, Seifert et al. 2011). For two decades (Gamundi et al. 1977), the genus *Dictyochaeta* (Spegazzini 1923) was considered an earlier name for *Codinaea* (Maire 1937), but following the molecular analyses of Réblová & Winka (2000), both genera are currently accepted. Li et al. (2012) recommended that species with filiform appendages be retained in *Codinaea* and taxa lacking appendages be placed in *Dictyochaeta*.

During a mycological survey of freshwater fungi associated with submerged plant materials in a river at a Brazilian Atlantic forest a conspicuous fungus was collected that is described here as a new *Codinaea* species.

Materials & methods

Individual collections were placed in flasks and plastic bags, taken to the laboratory, and treated according to Castañeda (2005). Mounts were prepared in polyvinyl alcohol-glycerol (8 g PVA in 100 ml of water, plus 5 ml of glycerol) and in lactic acid (90%), and measurements were made at a magnification of ×1000 under a Nikon Eclipse Ni-U microscope with bright field optics. Photomicrographs were obtained with the Nikon microscope with a Nikon digital camera (model DS-Fi2). The holotype was deposited in the Herbarium of Universidade Federal de Pernambuco, Recife, Brazil (URM).

Taxonomy

Codinaea aquatica R.F. Castañeda, M.S. Oliveira & Malosso, **sp. nov.** Fig. 1

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Differs from all other *Codinaea* species by its fusiform to navicular conidia with a strongly curved, shorter basal appendage and a straight or flexuous, longer apical appendage.

Type Brazil, Pernambuco, Cabo de Santo Agostinho, Refúgio de Vida Silvestre, Matas do Sistema Gurjaú, 8°13′S 35°03′W, alt. 85 m., on submerged decaying branches of unidentified plant in a river, 12.V.2015, coll. M.S. Oliveira (**Holotype**, URM 87707).

Etymology: Latin, *aquatica*, referred to its growing in water.

Colonies on the natural substrate scattered, hairy, black. Mycelium superficial and immersed, composed of septate, branched, brown, smooth-walled hyphae 2–4 µm diam. Setae absent. Conidiophores distinct, erect, straight or flexuous, cylindrical, 4–7-septate, brown to dark brown below, pale brown to brown toward the apex, 200–350 × 4–6 µm, smooth. Conidiogenous cells mono-and polyphialidic, integrated, 40–60 × 6–7 µm, terminal, mostly determinate, but sometimes indeterminate with few sympodial extensions, brown to pale brown, with 1–2 funnel-shaped collarettes, 2.5–4 µm deep. Conidia acrogenous, fusiform to navicular, sometimes unilateral ventricose, slightly truncate at the base, obtuse at the apex, unicellular, 25–28 × 10–12 µm, thick-walled, hyaline, smooth, with a filiform appendage at each end: basal

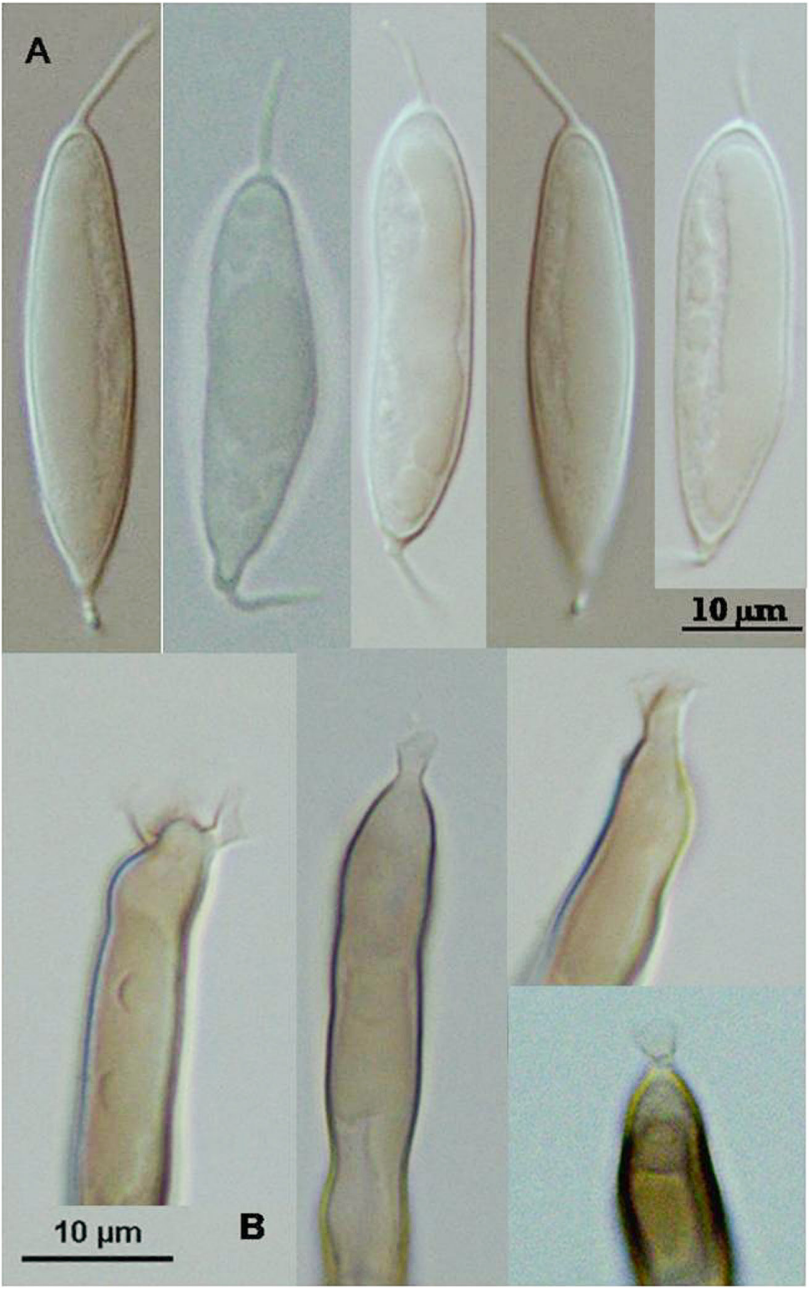

Fig. 1. *Codinaea aquatica* (ex holotype URM 87707). A. Conidia. B. Conidiogenous cells.

appendage strongly curved to forming a 90° angle with the axis of conidial body, 4.5–6 µm long, apical appendage straight or flexuous, 7–8 µm long.

Notes: Among all recorded *Codinaea* and *Dictyochaeta* species (Index Fungorum 2015) only *Dictyochaeta tropicalis* resembles *Codinaea aquatica* in the placement and arrangement of the filiform appendage. However, *D. tropicalis* [recombined in *Codinaea*, below] has ellipsoid to drop-shaped conidia (7.5–9.5 × 3–5 µm; Bhat & Kendrick 1993), which cannot be confused with those of *C. aquatica*.

Codinaea tropicalis (Bhat & W.B. Kendr.) R.F. Castañeda & Malosso, **comb. nov.**

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≡ *Dictyochaeta tropicalis* Bhat & W. B. Kendr., Mycotaxon 49: 45 (1993).

This species has monophialidic conidiogenous cells with a flared apical collarette, and its conidia are ellipsoid to drop-shaped, hyaline, and with a filiform appendage at each end (Bhat & Kendrick 1993). The new combination is proposed because *Dictyochaeta tropicalis* has characters that fit the modern generic concept of *Codinaea* (Li et al. 2012, Réblová & Winka 2000, Seifert et al. 2011).

Acknowledgments

The authors express their sincere gratitude to Dr. Xiu-Guo Zhang and Dr. De-Wei Li for their critical review of the manuscript. The authors are grateful to the 'Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES)' for financial support through project 88881.062172/2014-01 and the 'Programa Ciência sem Fronteiras'. RFCR is grateful to the Cuban Ministry of Agriculture and 'Programa de Salud Animal y Vegetal', project P131LH003033 for facilities. We acknowledge the facilities provided by Dr. P.M. Kirk and Drs. V. Robert, G. Stegehuis and Arthur Decock through the Index Fungorum and MycoBank websites. Dr. Lorelei Norvell's editorial review and Dr. Shaun Pennycook's nomenclature review are greatly appreciated.

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